

Prioritization of Target Areas for Rehabilitation : A Case Study from West Kalimantan, Indonesia

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Abstract

To rehabilitate degraded forestlands and conserve the remaining forests in Kalimantan, effective measures are needed that accommodate various land uses in the landscape. We present a pragmatic model for prioritizing target areas for rehabilitation and discuss a potential approach, combining traditional reforestation and the forest management methods of local Dayak tribes with the operations of a commercial tree plantation venture, to promote the rehabilitation of elements of the tropical lowland rainforest. We characterized the vegetation and land use in the study area and assume that rehabilitation and conservation value will be maximized by concentrating rehabilitation efforts around forest patches with high cultural and economic value to the local Dayaks. We simulated potential enlargement of these culturally important forests and built a model to calculate a rehabilitation value for each forest fragment and fragment group with

easily measurable criteria of vegetation and area. The model gives priority to areas where large continuous areas of culturally important forests already exist and/or will be created. The individual culturally important forest patches and their total area in the landscape are small, but even a small potential enlargement may be enough to establish relatively large concentrations. The potential matrix area for rehabilitation is dominated by young successional woody vegetation. Forested areas, although heavily degraded, connect several culturally important forest concentrations and are the most desirable target for rehabilitation. A well-managed commercial tree plantation can enhance conditions for the protection and rehabilitation of degraded forestlands through traditional reforestation and forest management methods.

Key words: degraded forestland, fast-growing plantation, GIS, land use, *tembawang*, traditional reforestation.

Introduction

Rapid loss and degradation of Indonesia's tropical forests have inflicted severe negative environmental impacts and raised concerns in the global society (Sunderlin & Resosudarmo 1996; FWI/GFW 2002; FAO 2005). About 1.3-2 million ha of forests are lost annually as a result of unsustainable logging, conversion of natural forests into plantations and other land uses, small-scale farming, and uncontrolled forest fires (FWI/GFW 2002; FAO 2005). Recent studies show that in Kalimantan, the Indonesian part of Borneo island, the fragmented forest network is no longer viable to preserve remaining forest habitats and their biodiversity (Curran et al. 1999; FWI/GFW 2002; Fuller et al. 2004). In large parts of Kalimantan, forest loss and destruction have led to the formation of extensive degraded and secondary forests (by ITTO 2002 definition), whose development largely influences the characteristics of Kalimantan's forests and the possibilities of smallholder farmers to manage their environment in the future (de Jong et al. 2001).

Several initiatives and projects have been devised to halt deforestation and help rehabilitate the degraded forests of Kalimantan and other parts of Indonesia (de Jong 1997; Potter & Lee 1998; CIFOR 2004). Despite the obviously benevolent intentions of these endeavors, there is little clear evidence that they have been successful (CIFOR 2004). The top-down approach prevalent in rehabilitation initiatives until the 1990s has gradually shifted toward community-based forest rehabilitation and management (CIFOR 2004).

According to the present understanding of "forest landscape restoration," successful restoration of deforested landscapes requires the accommodation of different land

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